

MANGALORE UNIVERSITY
DEPARTMENT OF BIOSCIENCE

BSS 504 IMMUNOLOGY

39hrs

Course Outcomes:

After successful completion of the course, students will be able to:

- Gain a sound knowledge in immunology from basics to advanced levels.
- Know the history and appreciate the scope of immunology.
- Realize the meaning of various terminologies in immunology.
- Understand the structural and functional basis of immune cells and organs.
- Comprehend how body defence against microbial infection.
- Get a detailed picture of antigens and antibodies.
- Know about different types of autoimmune diseases, AIDS and tumor-immunology.
- Understand how to perform immunization and production vaccines.
- Master the theoretical knowledge of various immunological techniques, including, ELISA, RIA, Fluorescent activated cell sorter.
- Know the biomedical importance of hybridoma technology for production of monoclonal antibodies.
- Know how to do *in-vitro* fertilization, embryo transfer, super ovulation and cloning.

UNIT I (13 hrs)

Immunology: History and scope of immunology; Immunity, classification of immunity; Host defence: cellular, tissue and humoral immunity; Acquired immunity; Primary and secondary lymphoid organs; Microbial defence: invasion, antigens, toxins; Antibodies: Production, structure, classification and functions; Antigen-antibody reactions.

UNIT II (13 hrs)

Autoimmune diseases: Thyrotoxicosis, Systemic Lupus Erythromatosis, Antinuclear antibodies, hypersensitivity; Tumour immunology– tumor antigens, immunosurveillance,

immunological escape. Immune deficiency diseases– AIDS; Immunological tolerance, Immunization and vaccines.

UNIT III (13 hrs)

Immunological techniques: Precipitation and agglutination, immunodiagnosis, ELISA, RIA, immunoblotting and immunofluorescence; Fluorescent activated cell sorter (FACS); Hybridoma technology, production and application of monoclonal antibodies; *In-vitro* fertilization, embryo transfer, super ovulation and cloning; Juvenile hormone analogues.

References:

1. Cellular and molecular immunology – Abul K. Abba, Andrew H. Lichtman, Jordan S.Pober- Saunders Co.
2. Essential immunology – Ivan Riott 8th edition Blackwell publishers, 1988
3. Handbook of expt. Immunology vol.1,2. Wier DM Blackwell scientific Pub.
4. Immunology – Janis Kuby. Freeman and co publishers, 2000
5. Immunology – 3rd edition. Ivan Riott, Jonathan Brostoff and David Male. Mosby publishers
6. Immunobiology- 3rd edition Janeway and Travers. Churchill Livingstone publicat
7. Practical immunology. Hudson etal Blackwell scientific Pub., 1986
8. Immunology. Elgert KD. Jon Wiley and Sons, USA
9. Microbiology and Immunology Concepts. Barrett JT, Lippincott-Raven, USA

